



## **Time series of vertical total electron content from VLBI**

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Within project VLBIonos at the IGG, Vienna a method has been developed which enables estimation of vertical total electron content values from VLBI measurements. As VLBI observations cover more than two complete solar cycles, longer than all other space geodetic techniques using radio signals, the relation to space weather indices on long time scales can be demonstrated. Additionally, the results obtained from VLBI can be cross-validated against GPS, satellite altimetry data, and theoretical models like IRI. It can be stated that the overall agreement between VLBI and GPS is within the formal error of each technique and that both systems detect the same periods of ionospheric variations. But only VLBI is able to reveal long period signals like the (about 11 year) solar cycle, since it covers a sufficiently long time span. Systematic biases of the techniques can be investigated and deficiencies of theoretical models can be revealed.